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ABSTRACT

A product of the Intergovernmental Conference on the Planning of National Documentation, Library and Archives Infrastructures in September 1974, this document outlines fourteen objectives adopted by the delegates for the development of National Information Systems (NATIS). These objectives are presented in two groups: those for national action--dealing with the requirements of NATIS, the planning of NATIS, and universal bibliographic control in relation to NATIS--and those for international action. The document also provides a general background on planning for an "improved society," describes the purposes and aims of the Conference, and reproduces the two recommendations (cf 24 adopted at the Conference) that are concerned with the launching of NATIS. Included are a list of member states and a list of other documents produced by the Conference. (JD)

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NATIS
NATIONAL INFORMATION SYSTEMS

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Objectives for national and international
action

Paris, Unesco, 1975

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Planning for an "informed society"

Information has become the essential basis for the progress of human civilization and society. This has been recognized in most countries and in those with large investments in research and development, complex information systems have been created to meet the special needs of scientists, engineers, administrators, and those working in the socio-economic fields. In developing countries, where resources are usually more limited, the need for giving high priority to information services⁽¹⁾ is also now being recognized.

Better information services help to achieve a society in which citizens, individually and collectively, can cope with the problems of every day life, can improve human relationships in their own communities and between peoples of differing cultures and traditions, and thus contribute to better understanding and world co-operation.

The trend towards this progressive society is being accelerated by the development of a sort of "information industry" based on modern techniques which provide a means of channelling knowledge and spreading it more easily. As a result, many countries have been examining the need for more systematic planning of their present information infrastructures so as to utilize fully the information accumulated at the national level and to be able to participate in and benefit from existing and future world information systems in various fields of activity, like those set up by agencies of the United Nations family.

The growing use of co-ordinated planning is symptomatic of the more highly industrialized countries and is increasingly spreading in the developing countries. The former are seeking ways of achieving greater efficiency through co-ordination of existing documentation, library and archives services, the latter of improving their indigenous capacities and of creating new ones.

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- (1) In this document information services include many relevant forms concerned with the storage, processing and dissemination of information for specific users - all types of library (national, university, special, school, public, governmental, etc.), documentation services, archives.

In some large industrialized countries with a tradition of autonomous institutions it is now becoming accepted that information networks must be planned and co-ordinated centrally if they are to exercise their function as important elements in the nation's educational, cultural and scientific progress. Typical examples of these trends are the creation of the British Library from the fusion of a number of related but separate services, and the unifying "Programm der Bundesregierung zur Förderung der Information und Dokumentation" which the Federal Republic of Germany is launching for its national documentation. In the United States of America, a national programme of library and information services has been published and will probably lead to some form of co-operation at national level(1).

In the USSR and other socialist countries, a co-ordinated national information system has been in existence for a long time, and accepted by the State as an important element in the nation's development plans.

The need for co-ordination has also been clearly expressed by the developing countries in the regional expert meetings organized by Unesco in Latin America, Asia, Africa and the Arab States; several consultations were also organized on the specific problems of archives planning. It was recommended by these meetings that systematic planning of information infrastructures was one of the more effective means of fostering rapid development. This view has been underlined in many publications prepared by FID, IFLA and ICA, some commissioned by Unesco.

The experts at these meetings studied the problem in the light of the specific conditions of each region and recommended action to be taken at the national and international levels.

With a view to generalizing the findings of these Unesco regional meetings on planning documentation and library services, and of other meetings and consultations of experts on archives, the seventeenth session of the Unesco General Conference (1972) authorized the Director-General to: "promote the planning of documentation, library and archives services

(1) U. S. National Commission on Libraries and Information Science. Toward a national program for library and information services: goals for action. Washington, D. C., 1975, 106 p.

as an integral part of national communication and infrastructures in support of development ... " by "convening, in co-operation with the International Federation for Documentation, the International Federation of Library Associations and the International Council on Archives, an Intergovernmental Conference on the planning of overall national documentation, library and archives infrastructures".

The Conference was accordingly organized in Paris from 23 to 27 September 1974.

Purpose and aims of the Conference

The purpose of the Conference was to provide a framework for governments of Member States in various stages of development and with different social and political structures, to exchange views and experience on the co-ordinated planning of national documentation, library and archives policies, methods and services over the whole range of human activities, that is the humanities, culture, sociology, economics, law, administration, and the pure and applied sciences. A further aim of the Conference was to recommend guidelines for the creation and development of national information infrastructures and their links with the different sectors of national development plans.

Such an infrastructure consists of: (i) users, who are the *raison d'être* of the infrastructures; (ii) physical information resources (documentation centres, information analysis centres, data banks, libraries, archives, and so on), making use of the latest technological developments and established within an organizational structure which, based on appropriate legislation, is designed to permit the effective transfer of information to the users; (iii) qualified manpower to operate the elements of the infrastructure. In other words, the infrastructure is concerned with those who want information, with where it can be found, with those who organize it and the manner in which it should be organized.

Some specific aspects of this complex problem have already been studied at previous international conferences and meetings - many of them organized by the international non-governmental organizations - and are now reflected in a number of agreements, recommendations, norms and guidelines concerning, for instance, international formats, rules for abstracting and indexing, international library statistics,

exchange of publications, the free flow of information, contents evaluation, UBC standards for bibliographic descriptions, INIS, AGRIS, and especially UNISIST guidelines. These must be taken into consideration in the implementation of national information plans.

The focus of the Intergovernmental Conference was on certain basic issues of planning policies and methodology:

the planning of the infrastructure per se within the framework of national overall and sectoral planning;
the introduction of modern technology into the physical elements of the infrastructure;
the planning of manpower for the infrastructure.

Manpower and the application of relevant technology are basic for any national information structure and for that reason were singled out for special consideration at the Intergovernmental Conference. The successful establishment of a national information system (NATIS) needs careful planning of these two elements.

Results of the Conference

The Conference was attended by 254 delegates from eighty-six Member States of Unesco and sixty-three observers from organizations of the United Nations system, other intergovernmental organizations, and international non-governmental organizations and foundations (list of countries in Annex I and list of documents in Annex II).

The proceedings of the Conference and the twenty-four recommendations adopted are contained in the Final Report⁽¹⁾. Two of these recommendations are concerned with the launching of NATIS and are reproduced below:

NATIONAL INFORMATION SYSTEMS (NATIS)

Recommendation No. 1

The Conference,

Recognizing that information has become an essential basis for the progress of civilization and society and that by improving human relationships in their own societies and

(1) COM/MD/30

between peoples of different cultures and traditions it contributes to better understanding and world co-operation, Noting that there exists in many parts of the world an imbalance in the provision of resources for making access to information possible to users in all fields of knowledge, Considering the importance for both developing and industrialized countries of concerted action at the national, regional and international levels to ensure full use of existing information facilities,

Appreciating the action of Unesco, in co-operation with the International Federation for Documentation, the International Federation of Library Associations, and the International Council on Archives in convening the present Conference so as to generalize the findings of the regional conferences on planning in Latin America, Asia, Africa and the Arab States and to provide governments with general guidelines of planning policy and methodology for documentation, library and archives services, and also appreciating the recommendations coming from the Intergovernmental Conference on UNISIST and the subsequent guidelines developed by this programme,

Recognizing the action of the other United Nations Specialized Agencies which also promote the development of information services within their respective areas of competence,

Accepts:

the general concept of national infrastructures of documentation services, libraries and archives (NATIS) outlined in the document: National Information Systems (NATIS): objectives for national and international action (COM-74/NATIS/3), as amended by the Conference, as an overall structure encompassing all services involved in the provision of information for all sectors of the community and for all categories of users;

Invites Member States of Unesco:

to take suitable action to create or improve a national information system or an infrastructure for information services, in accordance with the economic and social structure of the country and its cultural heritage and within the framework of the national overall and sectoral development plans and its communication policy;

Recommends that:

such a national system or infrastructure should be supported by the prerequisites of appropriate legislation, financing,

qualified manpower, and use of modern information technology and provided with appropriate national co-ordination of the various components of the system;

Recommends to Unesco that:

to help Member States achieve their national information systems, it should increase its assistance to developing countries, within the available resources;

Recommends to the Director-General of Unesco that:

in consultation with Member States, he establishes under the aegis of Unesco appropriate machinery to ensure that Unesco activities are directed towards assisting the close articulation of national, regional and international activities;

Recommends that:

the close co-operation between Unesco and the three international non-governmental organizations associated with the Conference continue and intensify and that this co-operation be extended to other relevant international non-governmental organizations such as the International Organization for Standardization, International Council for Reprography, etc., and including those representing users, concerned with substantive fields generating information to be communicated;

Recommends to the Director-General of Unesco that:

the proposals made in this and the following more detailed resolutions be submitted to the eighteenth session of the General Conference as a basis for the formulation of a long-term programme for documentation, libraries and archives to be submitted at the nineteenth session of the General Conference;

Expresses the wish that:

the General Conference take the necessary measures to ensure the most effective implementation of NATIS within the 1975-1976 Programme and Budget of Unesco.

NATIONAL DOCUMENTATION LIBRARY AND ARCHIVES INFRASTRUCTURES

Recommendation No. 2

The Conference,

In acknowledgement of the special importance of NATIS in the framework of national development planning,

Calls upon the Director-General of Unesco:

to issue to Member States, after due consultation with the appropriate international non-governmental organizations (FID, IFLA and ICA), and not later than December 1976, general guidelines for the implementation of NATIS;

Urges Member States:

to establish not later than December 1978 appropriate co-ordinating national organs with clearly designated powers and responsibilities for the detailed study of all problems involved and the elaboration of plans for the effective implementation of NATIS within the national framework and in general accordance with the guidelines issued by the Director-General of Unesco as proposed above.

The recommendations of the Intergovernmental Conference of September 1974 were endorsed shortly afterwards by the eighteenth session of the General Conference of Unesco held in October-November 1974, which approved the concept of NATIS and its objectives as defined in the present booklet and authorized the Director-General "to assist Member States, especially the developing countries, to plan and develop their national infrastructures or national information systems (NATIS) . . . , to draw up a long-term programme of action to this end, and submit it to the nineteenth session of the General Conference" (1976). The main objectives for Unesco action are outlined in Part 2 of this booklet "Objectives for international action".

The concept of NATIS

Planning at the national level implies proposing to policy-makers and those who take the decisions the various options that can be taken, pointing out in each case the financial, social and administrative implications. It thus helps to anticipate some aspects of the future, to consider and weigh alternative courses of action, and to allocate such resources as manpower, money, machines, etc., for meeting carefully delineated priorities.

So far, in formulating national development plans little attention has been paid to the systematic organization and dissemination of information, which is one of the vital resources of a country. As the idea gains ground that international collaboration should be achieved, national planning of this vital resource becomes a necessity, and the need is all the more pressing as international co-operative programmes, such as UNISIST and Universal Bibliographic Control, are developed.

The NATIS concept implies that the government - national, state or local - should maximize the availability of all relevant information through documentation, library and archives services just as in principle it takes responsibility for the basic education, at primary and secondary levels, of its citizens.

As governments invest more and more money and personnel in developing national, school, public, university and special libraries as well as documentation and archives services, they are beginning to insist that overlap among certain types of service must be eliminated and serious gaps in the provision of information be filled by directly planned action, rather than by haphazard collaboration, and by the creation of institutions capable of acting as national counterparts in international efforts. This is likely to be easier for the new and/or developing countries than for the older ones, where vested interests (academic, associations of scientists, industrial groups) are more entrenched.

Once governments become thus involved in planning the next steps are likely to follow naturally. To begin with, the functions, objectives, importance and potential contributions of documentation, libraries and archives in all fields of national planning and development should be defined, taking into account their specific interrelations with other professions.

Comprehensive surveys of these services should be carried out and the survey data obtained should be used as the basis for forecasting future needs and the preparation of a long-term plan. The plan should cover the legislative and financial basis for the operation and all aspects of the structure and functioning of these services, including manpower provisions, technological components and co-operative arrangements.

The precise form and character of the national information system (NATIS), composed of a number of sub-systems, will vary in different countries, but co-ordination of all its elements must be the goal.

The elements that should constitute NATIS are all services involved in the provision of information for all sectors of the community and for all categories of user. The task of NATIS is to ensure that all engaged in political, economic, scientific, educational, social or cultural activities receive the necessary information enabling them to render their fullest contributions to the whole community.

To achieve these aims, a national information plan will have to be developed in accordance with an established information policy and implemented, taking into account the priorities of national overall and sectoral planning. The plan should reflect the existing situation, and possible ways of improving it using to the maximum the human and physical resources available, and should provide for the creation of new capabilities and facilities. An analysis of the performance and objectives of all types of library (national, public, school, university, special), documentation activity (data banks, abstracting and indexing services, national information analysis centres, etc.) and archives, will show that co-ordination will improve their efficiency, and make it possible to fulfil the demands of users.

Building up a national information system (NATIS) involves meeting basic requirements and establishing its foundation and planning the various phases of its implementation. Its action should be planned in an international context and based on principles of compatibility and standardization.

The methods to be followed in the creation and development of NATIS are crystallized in twelve objectives to be attained by national governments and in supporting objectives for international action by Unesco and other international organizations.

1. OBJECTIVES FOR NATIONAL ACTION

1.1 Requirements of NATIS

Objective 1 - A national information policy

A national information policy, reflecting the needs of all sectors of the community, and of the national community as a whole, should be formulated to guide the establishment of a national information plan, whose elements should be fully incorporated in the national development plans.

Information is an essential part of a nation's resources and access to it is one of the basic human rights. The formulation and implementation of a national information policy is the only way to ensure that all who engage in administrative, educational, scientific and cultural activities have access to the information they need. Priorities in the national planning must, therefore, be reflected in specialized information sub-systems.

Information is not only a national resource vital for scientific and economic progress, but also the medium of social communication. The personal, vocational and social development of the individual depends on the amount, quality and accessibility of information to such a user. The ultimate aim of an information policy must, therefore, be an informed society.

The State tasks of planning, decision-making and administration are increasingly dependent on the availability of reliable information which can only be obtained through the systematic organization of this resource. The conviction has gained ground that every State needs short-, medium- and long-term plans to achieve co-ordination and co-operation of activities and resources to strengthen the national infrastructures for the benefit of all institutions and services. Modern planning techniques of diagnosing needs, identifying objectives, allocating resources (both public and private) controlling and evaluating progress are fully applicable to documentation, libraries and archives just as they are to other means of communication of which information is an integral part.

Therefore, planning for the maximum availability and use of the country's information resources should be integrated with the overall national and sectoral development plans and interrelated with communication planning as a whole. The

planning of the elements of a national information system (NATIS) thus becomes one specific aspect of educational, scientific and cultural planning within the social and economic planning of a country or region, for within this context this planning can reach its maximum efficiency.

An information awareness at all levels is essential for implementing this national information policy for all sectors of the community, for the planning of any infrastructure which will function satisfactorily, for assigning realistic priorities at government level - central or local - and for measuring progress effectively and at regular intervals.

Documentalists, librarians and archivists must be fully aware of their rôle in national development plans, but planners and statesmen also need to be aware of the importance of this rôle in its relation to other sectors of national planning in order that the appropriate conditions can be created in which documentation centres, libraries and archives can provide their contribution to the full, and can participate effectively in international co-operative networks.

Objective 2 - Stimulation of user awareness

In order to increase user awareness, appropriate bodies, including universities and other educational institutions should include in their programmes systematic instruction in the use of the information resources available in all the elements of NATIS.

In many parts of the world, even though information is available in the collections of documentation, library and archives services, the potential users of these facilities are unaware of their existence and the advantages they offer, or the information remains unused because it does not meet the special needs of specific sectors of the community.

The voluntary co-operation and understanding of all members of the community is needed if NATIS is to reach its optimal efficiency. Within the framework of users' education, every citizen should therefore be aware of his right to the information he seeks - and of its importance - whether it be for professional advancement, performance of his social duties, or recreational reading.

Accurate information provided promptly as and when required enables the government agency, the individual or commercial enterprise to reach the right decision or take the right action.

Use of libraries should therefore be a part of instruction offered from the primary school level onwards so that seeking information becomes a normal part of daily life. The content of these programmes should be expanded as the advance through the educational system progresses.

At the university level courses in the use of specialized literature and sources of information should be made available as part of the regular curricula, and these courses should be set up with the full co-operation of the university libraries. Other appropriate institutions for providing this type of training are schools of documentation, librarianship and archives, national libraries and archives, or specialized documentation centres. Where such courses have been given, they have usually proved highly effective in improving the use made of the available resources by the faculty and students.

These efforts started within the educational programmes should be continued in professional life, and research workers should be encouraged to seek and use the specialized literature which would help them in carrying out their research and development programmes.

Objective 3 - Promotion of the reading habit

In order to foster and maintain the reading habit the network of school and public libraries within NATIS, in co-operation with the appropriate educational institutions, should develop programmes specially designed to attract and sustain the interest of a wide potential clientele.

In formal schooling, as in the life-long education necessary for all participation in society, books have an essential rôle to play at all stages and the scarcity of books and faulty distribution systems in many parts of the world may frustrate many other efforts for educational development.

While it is comparatively easy to teach a child or an adult to recognize letters and words, the skill can be quickly lost. School libraries can have a great impact on a child's intellectual and cultural development. It is at that stage that the individual most easily learns to use books and libraries and acquires "functional literacy", thus ensuring that when he leaves school he does not relapse into illiteracy. This is particularly important since adult semi-literacy is being recognized as a problem even in some developed countries. Far too few resources are being put into the development of school libraries in many countries.

Closely related are the public libraries which, among their functions, foster continuous education and re-education so necessary in a world of innovation and rapid change. The provision of appropriate reading materials is the key to success. For the newly literate, books in easily readable type and simple language, whose content corresponds to areas of known interest in specific socio-economic contexts, are required. To promote the reading habit, attempts should be made to extend library services to potential readers, creating, if necessary, new forms of service to reach rural areas and respond to the varied and changing needs of readers.

Objective 4 - Assessment of users' needs

A detailed analysis should be made of the information needs of government for its tasks and of the various groups of users in such areas as industry, research and education to ensure that the national information system (NATIS) is planned to meet these needs.

Differences in national infrastructures result not only from varying levels of development but also from administrative, historical and economic factors. Every national infrastructure must meet the special needs of its own country, and those who are planning the development of national information systems (NATIS) should formulate plans emphasizing those activities which will support the priority programmes of their own government, while bearing in mind experience gained in other countries (e.g. translation services are particularly important) and at the international level.

It is usual to outline a long-term plan for about 10 years and to elaborate the medium-term implementation for the first five years.

Surveys should, therefore, be promoted by the control body (cf. Objective 7) through questionnaires and other means to determine the needs of users of information. These needs should be seen in terms of breadth of coverage (scientists and technologists have a world-wide subject approach), in the depth needed (educators, planners want a more synoptic approach and have narrower international demands), and to determine the extent of the demand for subject services designed to meet the precise needs of individuals for research groups. Special attention should be paid to the need for the scientific evaluation of the literature and data and for the analysis of

documentation in depth, as well as for the popularization of information.

NATIS should be designed on the basis of these analyses in order to offer the type and quality of service hoped for by users. Further surveys should be made periodically to evaluate the extent to which the system is fulfilling its objectives.

Objective 5 - Analysis of existing information resources

Comprehensive surveys should be undertaken of existing national documentation, library and archives resources as an essential prerequisite of sound national planning for the development of NATIS.

The survey data on existing documentation, library and archives resources should be used by the central body as a basis for forecasting future needs and the preparation of a long-term development plan, in accordance with the national information policy formulated on the basis of priorities in the national overall and sectoral development plans. These surveys should be made at regular intervals and published as a means of evaluation and feedback in order to provide continuous control of the progress and results of the implementation of the plan.

The surveys should analyse the extent to which new technologies are already being applied and relevant research is being conducted on specific problems at the national level.

On the basis of an analysis of the data obtained, plans should be made for the systematic development of information resources within each country utilizing all available devices such as computers, audio-visual material, teleprinters.

A realistic appraisal of the level of technology suited to the needs of the country should be made; it should be consonant with its manpower and financial resources and made on the basis of careful cost analysis and evaluation of alternatives. It should be borne in mind that technology and equipment may already be in use for other purposes and may be exploited for documentation, library and archives services through co-operative arrangements. Provision must be made for the acquisition or development of the necessary specialized software, consistent with the current level of technology.

Objective 6 - Analysis of manpower resources

Comprehensive surveys should be undertaken of existing national manpower resources as a basis for the planning of manpower provision and the forecasting of future needs for NATIS.

Since qualified manpower is generally accepted as being a very important element in the building up of national infrastructures, the surveys promoted by the central body should analyse existing manpower resources in relation to the estimated growth of information activities to determine the availability of trained personnel at the various levels of professional and non-professional duties. The availability of personnel should then be related in terms of number and quality to the national needs indicated in the national plan for documentation, library and archives services, having regard to international and other accepted standards. Programmes for education and training should be drawn up on the basis of an evaluation of the survey data so as to meet manpower needs required for the satisfactory performance of tasks to be carried out by the system (cf. Objective 8).

The surveys should take into account national and international resources so that assistance can be mobilized to enable at least the minimum essential facilities for basic training to be developed at national or regional level.

1.2 Planning NATISObjective 7 - Planning the organizational structure of NATIS

The functions of all documentation, library and archives services should be co-ordinated through a central body (or bodies) to form the national information system (NATIS), so as to ensure the optimum use of available resources and the maximum contribution to the cultural, social and economic development of each nation.

The fundamental function of a national information system is to provide for the effective transfer of information that meets the needs of the whole community. Governments should establish the appropriate organs for the operation of NATIS and clearly designate responsibilities and determine priorities at all levels, bearing in mind that coping with the quantities of documents and data now being produced far

exceeds the resources of any single service acting on its own.

It is therefore highly desirable that a central co-ordinating body (or bodies) be set up to advise the government on the formulation and implementation of national information programmes and in matters related to international co-operation in these fields.

This central co-ordinating body (or bodies) should be composed both of representatives of all appropriate government departments, State bodies, and semi-official institutions, and of representative specialists from the information field; its structure should conform to the existing administrative organization as well as to the general targets of national information policy. No one single model for a national information system (NATIS) with its appropriate networks and services can be designed capable of suiting the requirements of different countries in different regions. However, some important principles should be referred to in preparing plans for the system:

- (a) in designing its structure maximum flexibility should be allowed;
- (b) efforts should be made to promote effective co-operation between all types of services within the system;
- (c) resources should be utilized to the maximum;
- (d) greater compatibility and standardization should be aimed at;
- (e) the international exchange of information and materials should be facilitated.

It is of the highest importance therefore that documentation centres, libraries and archives should not be thought of as isolated units, nor even as a national network of such units separate from other professions and sectors of society, which are in fact closely interrelated. The professions are able to draw strength and inspiration from each other's efforts by recognizing their interrelatedness. Some countries have reached different levels of development in the various sectors, and the problem of ensuring inter-sectoral co-operation affects both developing and developed countries.

The present situation is characterized in a great number of countries, especially in the industrialized ones, by a gap between documentation centres and libraries on the one hand and archives on the other. Closer co-operation between documentalists, librarians and archivists should be encouraged

both at the international level where FID, IFLA and ICA have already established joint units, and at the national level where their planning should be co-ordinated wherever possible.

Within the national information system (NATIS) interrelated networks of school and public libraries should be established and developed to incorporate media resource centres and cultural centres in support of in-school and life-long education, literacy programmes and national plans for book development alongside specialized documentation networks geared to meet the needs of specific user groups.

The archival responsibilities within the national information system (NATIS) should include the services required for preservation of records retained for permanent collections as well as a formal records management policy for the organization, preservation and appraisal of current records in administrative services at all levels. These responsibilities also include seeking solutions to the problems of how to reduce the vast quantities of records currently produced by government agencies.

Effective co-operation between all these networks and services should be promoted, particularly for the production of the national bibliography, and in the following fields: co-operative acquisition of materials, centralized processing, abstracting and indexing, establishment of union catalogues and inter-library lending systems, data processing, use of reprographic, audio-visual and other equipment, and translation and preservation facilities.

Planning the development of NATIS is therefore a complex operation; prerequisites are acceptance at governmental level of its vital rôle, analysis of the existing physical and human resources and of user needs. The targets for this planning are:

- (i) elaboration of development plans for each of the institutional networks composing the system;
- (ii) co-ordination of the network plans so as to achieve a comprehensive plan for the development of NATIS;
- (iii) incorporation of the comprehensive plan and its components in the national overall and sectoral development plans;
- (iv) harmonization of the NATIS development plan, particularly in specialized fields, with international aims for worldwide information systems.

Objective 8 - Supplying manpower for NATIS

National institutions and programmes of professional education for information manpower should be established as integral parts of the national educational structure at universities or equivalent institutions of higher education, and as the principal means of supplying adequate numbers of professional staff to meet the demand for qualified personnel at various levels to operate the national information system (NATIS). Courses for assistants in all three fields should be regarded as part of the national programme but distinct from the professional courses and will normally be organized in middle-level training institutions, or in institutions of higher education.

An overall effective policy should include provision for training of manpower to perform at all levels and in all relevant environments. The manpower structure must be balanced and integrated. Manpower planning is essential both to ensure an adequate supply of qualified staff to meet increasing national demands and to avoid over-production. Member States should, therefore, give high priority to these educational activities in their national development programmes by providing sufficient financial and legislative support. These activities should be carried out in universities or equivalent institutions of higher learning for the following reasons: to ensure close contact for the trainee with members of other professions of equivalent status such as research workers, historians and university teachers; to use teaching staff and facilities already available so as to reduce costs and integrate these programmes with those of other academic disciplines; to provide access to documentation, library and archives resources not only because the professional in-training requires the use of these resources for the trainee's studies but also because they provide the opportunity for practical as well as academic training.

The national programmes should not only include initial courses and advanced studies but also specialized courses to provide for continuing education and training.

Training personnel to use applied technology (including computers, reprography, audio-visual materials and telecommunications) in the field of information should be included in the national programmes of professional education. However, where there is a lack of qualified personnel this training could be achieved through the organization of courses of

different duration and at varying levels. The aim of these courses would be to give technical personnel an adequate grounding in systems analysis and design, computer software and new methods and techniques for information processing, storage, retrieval and interchange.

Designers of information systems may be trained through existing national facilities or by study abroad and such training should equip them to use modern tools and techniques in helping to implement the required information systems and networks.

The national programme should also include the establishment of training centres for the preparation of technical personnel in conservation and restoration work required by documentation, library, archives and museum services.

A core subject area, in harmony with equivalent programmes and objectives at national, regional and international levels, should be adopted as a guide for preparing basic professional curricula for information specialists, librarians and archivists at a level consistent with that of other university programmes of graduate standing.

Advanced level education for senior professionals at post-graduate and doctoral levels should be undertaken where possible and may be usefully supplemented by international exchange programmes, including those for teachers from other countries.

In many countries it will be necessary to produce a good supply of trained teachers to maintain these national programmes of professional education on various levels.

Qualified personnel in the information field should be accorded similar status and conditions of service as those accorded to professionals of equivalent level in other fields. Only in this way will personnel of the necessary calibre be attracted to and retained in the professions and brain drain avoided. To carry out the tasks of the documentation, library and archives infrastructure it will be necessary to recruit staff of high quality, able to accept the responsibility for making the fullest contribution to national development. There should be suitable administrative machinery for overseeing professional standards of recruitment, education, training and practice either by a professional association or by a government or similar official agency.

Objective 9 - Planning the technological needs for NATIS

The national information plan should include adequate provision for the application of information technology, as appropriate, in the various components of NATIS with the aim of achieving maximum utilization of existing resources and of reaching compatibility and standardization.

A nation's future capability to handle information effectively will, to a large extent, depend on how well and how rapidly it is able to integrate new technological methods and devices into the mainstream of its information activities. Advances in technology and in information practices are certain to continue, and each nation will need to decide, at some juncture, whether or not to further its national information development in a coherent way that optimizes the use of evolving technology.

National planning is essential in this area for several reasons: first, technology is costly and a long-range government commitment is required from the outset to ensure the stability of the programme. Second, technology is complex and a common sense of technical direction at the national level is imperative if all relevant agencies are to co-ordinate their activities effectively. Third, technology is specialized and the evolution of a national information programme must be synchronized with the technical education of the people who will operate it. And finally, because technology is by its very nature innovative, its introduction invariably alters traditional ways of doing things and necessitates national attention to the problems of user re-education.

There are no rigorous formulae or criteria available to guide developing countries in introducing new technologies into NATIS. The application of modern techniques to information processing should be considered at every phase of the national information plan, such as surveys of needs, user awareness, legislative and financial support leading to the organization of the elements of NATIS. In introducing technology, special attention should be paid to compatibility, standardization and system performance and analyses.

Objective 10 - Establishing a legislative framework
for NATIS

Legislative action should be taken at the earliest possible stage in support of the planning and implementation of the national information system (NATIS). This legislation should cover the conceptual basis of the system, and of its constituent elements including all specialized sub-systems.

Legislative action is one of the prerequisites for ensuring the development of a strong national infrastructure. Each government will naturally frame its legislation in the light of its own circumstances, but a large body of literature including several model Acts exists which may serve as guidelines. Because the benefits of information services are not easily identified, though none the less very real, individual elements of the information infrastructure which is not based on a secure legal foundation may on occasion become vulnerable targets for reductions in the budget. In such a case, a vital contribution to the national development plan will be lost. The right legislation made with full knowledge of the part that each element of the infrastructure has to play in national development will guard against this and safeguard future progress. To this end, the national information plan should provide for the drafting and adoption of any additional legislation required to reinforce the philosophical basis of the system, relations with all relevant authorities, manpower, professional status, structure and financing, internal and international relations.

Within the broad framework, special attention should be paid to foreseeing appropriate legislation: (i) to ensure the legal deposit of national publications; (ii) to strengthen and support the telecommunication network as a key element in the transfer of information; (iii) to implement existing Agreements and Conventions aimed at facilitating the exchange of all types of documentation, and remove administrative barriers to the free flow of information; (iv) to accord to qualified personnel in the information field, similar status and conditions of service to those accorded to professionals of equivalent educational level in other fields; (v) to reach agreements concerning the equivalence of examinations and diplomas obtained in other countries; (vi) to safeguard the nation's archival heritage against all endangering factors; (vii) to permit access to archives that are no longer classed as confidential.

Objective 11 - Financing NATIS

Adequate financial provision should be made to ensure the effective implementation of the plan for the national information system (NATIS).

The expenditure required for the operation of all the elements of the national information system pertains to an ever greater degree to the State and the national budget will therefore be the main source of funds for its financial support.

Planning includes many aspects but finally it has to establish time-tables and budgetary priorities. Financial provisions are likely to vary considerably from country to country, depending on size (population and area), natural resources, state of development, etc. None the less it is important to provide some guidance, first of all for developing countries, in the light of the experience of the rest of the world.

In recent years the ratio of government expenditures on information work to the total spent on R&D in a number of industrialized countries is exceeding 5%. In some countries which have to rely to a larger extent on findings of others, an even higher figure might be considered as reasonable. To approach this target without imposing a large strain on the national budget needs careful planning, particularly the co-ordination of the various sources of international aid (the United Nations agencies, the United Nations Development Programme, bilateral arrangements with donor countries and even the direct help from foundations) within the national plan.

Governments, especially those of the developing countries, are realizing that economic and social advance is dependent on the rapid improvement of existing national resources and that the related science and technology policy is heavily dependent on a strong and fast flow of socio-economic information of all kinds. Some countries may need to correct an imbalance in the resources devoted to the documentation of science and technology in contrast with all other fields.

In many countries the eradication of illiteracy and the improvement of education are main government targets, but the importance of school and public libraries as instruments in these fields are not yet fully recognized, since the cost-benefits derived from these services are not as obvious as in such a field as industrial information. When making budgetary provisions for the national information plan higher priority should be accorded to the development of these services.

In summary, three targets for financial provisions are:

- (i) inclusion of the costing of all the elements of NATIS in the provisions for national development plans;
- (ii) harmonization of the allocation of resources for all elements of NATIS, whether from internal or international sources;
- (iii) development of adequate salary structures for the professions involved in information work.

Similarly, the development of well-designed archival and records management systems may help to reduce significantly the general administrative expenditure and to increase the efficiency of the investments under government control.

1.3 Universal bibliographic control in relation to NATIS

Objective 12 - Universal Bibliographic Control

The concept of Universal Bibliographic Control (UBC) presupposes the establishment in each country of National Bibliographic Control with its aim to ensure that a bibliographic record for each new publication is made when the publication is issued.

The aim of UBC is to achieve the universal availability, in an internationally accepted interchange form, of basic bibliographic data on all publications.

The procedure proposed is that in principle the comprehensive bibliographic record of each publication be made once only in the country of its origin by a national bibliographic agency in conformity with international standards which are applicable to both manual and mechanized systems. This record is then made available very promptly in physical forms which are internationally acceptable. Thus there would be a network made up of component national units, each of which would cover its own publishing activities, all integrated at the international level to form the total system. All this implies the acceptance of the general principle that each national bibliographic agency is the organization responsible for creating the authoritative bibliographic record of the publications of its own country.

This national bibliographic agency should normally be set up in the national library, which receives all types of published documentation material by legal deposit and hence maintains the complete national collection.

To strengthen national bibliographic control, each country should examine the provisions of its existing deposit laws and consider its present requirements in relation to its national library. It should also seek ways of establishing national bibliographic control through the improvement of its publishing and book trade; through encouragement of bibliographic standards in book production (for title-pages, imprints, introduction of ISBNs, etc.) and, as a publisher, by setting examples and maintaining standards in editorial practices and book production.

In the past there have been many unsuccessful schemes for world-wide bibliographic control. Today, as the output of recorded knowledge mounts and the demand for access to that knowledge soars, the promotion of UBC becomes all the more necessary. Participation in UBC implies that all the countries involved will be willing to follow and implement international standards of bibliographic description and that they will accept each other's records, which would thus require a minimum of local modification. There is growing evidence that these goals are attainable.

Computer methods already hold out good prospects for alleviating the world problem of bibliographic control and information retrieval by co-operation and sharing; however, the real difficulties here lie not so much in the technical innovations but rather in the human questions of organization and standardization of input format.

For recording bibliographic data on book production, the International Standard Bibliographic Descriptions for Monographs (ISBD(M)) and Serials (ISBD(S)) have already been accepted by a number of countries, and their use by other countries for preparing their national bibliography is anticipated in order to achieve UBC.

Other internationally accepted standards for facilitating the identification, ordering and processing of the national book and serial production are the International Standard Book Number (ISBN) and, as part of the UNISIST programme, the International Standard Serial Number (ISSN).

At the moment, in some parts of the world, many of the component national units of the UBC system are in existence: their integration into the international communications network can be envisaged and achieved in the foreseeable future. But basically UBC is a long-term policy, and the programme of activities to promote UBC of necessity encompasses a wide

range of recommendations and projects, some of which cannot be expected to show results immediately.

2. OBJECTIVES FOR INTERNATIONAL ACTION

Many efforts have been made in the past to provide access to the world's store of information but emphasis was usually placed either on special groups (e.g. public libraries or documentation centres in a specific field) or on specific problems (e.g. bibliography, copyright), all equally important for overcoming some of the obstacles to the free flow and exchange of information so essential for progress. However, each of these efforts has made its contribution to only one particular aspect of the complex process of facilitating access to information, without achieving its full impact on the problem as a whole.

Similarly, the UNISIST, INIS, AGRIS and other programmes for world information systems all dealing with specific areas, are based on the principle of co-ordination and voluntary co-operation at the international level of the relevant existing national institutional components in the corresponding area. However, information infrastructures in both developing and industrialized countries are at very different stages of development, making it almost impossible for some of them, which are just beginning to lay the foundations of their infrastructure, to participate in or benefit from these highly sophisticated universal programmes.

The acceptance of the concept of NATIS and its objectives, which are designed to provide a framework for concerted action at the national level, provides governments with a set of guidelines which enables them to give a unified sense of direction and common aim to the diverse information activities being carried out in specific subject fields. By co-ordinating the national counterparts of the international programmes through overall planning, all the elements which constitute NATIS are brought together in a balanced programme which will enable each country, whatever its stage of development, not only to reap the full benefit from these world systems but also to participate in a two-way flow of the information resources available to the world's community.

In many countries, the launching of NATIS will require financial and technical assistance from national and international sources. Unesco, therefore, has initiated activities to this end and has drawn up a long-term programme of

action(1) to assist Member States in the planning and establishment of coherent national information systems (NATIS), which can participate as full partners in the transfer of the rapidly growing volume and sources of documentation and information.

The priorities for launching NATIS cover a wide spectrum and comprise studies and research of basic problems, the application of these studies to the improvement of indigenous capabilities, the building up of manpower resources, and the introduction of new technologies. The long-term programme of co-operation with, and assistance to Member States has been designed with a maximum of flexibility taking into account the total needs of documentation, library and archives services and emphasizing those projects which have greater utility and contribute effectively to national development plans in Member States. Flexible means of co-operating with national library, documentation and archives services will be used to meet the emerging needs, particularly of developing countries, with projects and activities that are closely geared to their problems and concerns.

This long-term programme for the promotion and development of NATIS will be published and disseminated as widely as possible.

In carrying out this programme, Unesco will utilize to a greater extent the co-operation of the international non-governmental organizations specialized in documentation, library, archives and related fields which carry out many useful activities, world-wide in scope, and has established a more effective and flexible basis of co-operation and assistance in support of the efforts of these organizations.

Objective 13 - Assistance to Member States for the planning and development of NATIS

The planning and development of a national information system (NATIS) and its elements in Member States will be promoted to achieve co-ordination at national level and as a basis for active participation in world information systems.

Unesco has included in the relevant part of its current programme, projects and activities designed to assist

- (1) The preparation of this long-term programme of action was recommended by the Intergovernmental Conference as Objective 15 in the booklet COM-74/NATIS/3.

Member States in carrying out their national programmes for achieving NATIS. Priority is given to the following:

- (i) Methodologies will be elaborated as basic tools to guide Member States in the various phases of planning and developing NATIS

The elaboration of a national information system in which existing elements are co-ordinated, missing elements identified, and created where necessary, raises many questions of policy, methodology, organization, finance, etc., as outlined in the NATIS objectives (cf. Objectives 1-6, 10, 11). Unesco promotes research and studies to analyse existing methodologies and to establish others, where necessary, to be used as basic tools, to guide Member States in assessing their needs, analysing their present human and physical resources and using to the best advantage all existing methodologies, norms and standards in the different phases of planning and implementing NATIS.

- (ii) The application of information technology to documentation, library and archives services will be encouraged and promoted in accordance with the NATIS concept

Since introducing new information technology into the various components of NATIS (cf. Objective 9) requires a careful analysis of various aspects ranging from selection of suitable equipment and cost to problems of compatibility and standardization at national and international level, Unesco places greater emphasis on these questions in its programme so as to be able to advise and assist Member States which intend to apply such technology in their national information systems.

The Unesco Computerized Documentation Service is increasingly used as a demonstration and training centre in automated processing for developing countries, including helping them participate in and benefit from the International Information System on Research in Documentation (ISORID) through their National Information Transfer Centres.

To assist its Member States in the utilization of software, Unesco will study the possibility of maintaining: a file recording existing off-the-shelf information software that could be made available on request and would systematically disseminate this information to potential users in Member States.

- (iii) The programme for professional education and training of information manpower will be revised and extended in the light of the needs of Member States in developing and implementing NATIS

A systematic approach is being adopted in outlining a general framework for this programme of assistance so as to give opportunities to all Member States to build up their national capabilities and to ensure at least a minimum supply of suitably qualified manpower for NATIS (cf. Objective 8). This programme is prepared on the basis of studies already carried out, and with a realistic view of the problems to be solved in countries without adequate facilities for training manpower. Closer co-ordination of programmes directed to education and training of information manpower carried on by international organizations and non-governmental organizations, will be the main goal.

Basic elements of this programme are: (i) the harmonization of curricula for documentalists, librarians and archivists; (ii) the education of teachers in the relevant fields of study; (iii) the education of qualified personnel; (iv) the training of technicians.

In fulfilling this objective Unesco explores all possible resources for assistance in providing fellowships as well as for contributions to the organization of special courses for this purpose, including regional centres.

Objective 14 - Promotion of Universal Bibliographic Control

Universal Bibliographic Control will be promoted by Unesco, in co-operation with IFLA, as a major policy objective to create a world-wide system for the control and exchange of information.

The promotion of Universal Bibliographic Control is one important aspect of the long-term programme and its success depends on efficient National Bibliographic Control (cf. Objective 12).

Unesco, in co-operation with IFLA, has already organized a number of meetings and promoted a series of studies connected with UBC.

A major step was the holding of a meeting of experts in May 1975 to design a plan of action for UBC. The meeting recommended that Unesco, in co-operation with IFLA, organize

an international conference on the improvement of national bibliographic control in 1977. The aims of the conference will be:

(a) to reach agreement on minimum standards and/or acceptable practices for the coverage, content and form of national bibliographic records, taking into account the requirements for their international exchange;

(b) to reach agreement on acceptable guidelines for the presentation, arrangement and frequency of the printed national bibliography;

(c) to discuss and make proposals for the sharing of resources to assist countries to achieve national bibliographic control, using either manual or computerized methods of producing national bibliographies.

The IFLA International Office for UBC, set up to co-ordinate national and international activities within the framework of the programme to achieve Universal Bibliographic Control, receives support from many governmental and non-governmental agencies.

Following the acceptance of UBC as one of the NATIS objectives, Unesco has increased its support to IFLA to maintain this essential service.

Conclusion

Unesco, according to its Constitution, has a definite mandate within the United Nations system, to deal with matters bearing on the dissemination of knowledge, the exchange of information, and documentation. Within this mandate, the Organization has been called upon to contribute to the establishment of the new international economic order, one of the aims of which is the improvement of the "quality of life" of each individual through cultural development as is an essential element in the fight against social injustice and in affording equal opportunities to all. Access to information is an inseparable part of this development.

To achieve this aim is the main objective of NATIS, which through its basic institutional and infrastructural emphasis provides the means for information of all types to be made available at all levels.

ANNEX I

List of countries which participated in the Intergovernmental Conference on the Planning of National Documentation, Library and Archives Infrastructures, Paris, 23-27 September 1974.

MEMBER STATES

Argentina	India
Australia	Indonesia
Austria	Iran
Bangladesh	Iraq
Belgium	Ireland
Byelorussian Soviet Socialist Republic	Israel
Brazil	Italy
Bulgaria	Ivory Coast
Cambodia	Jamaica
Cameroon	Japan
Canada	Jordan
Chile	Kenya
Colombia	Laos
Congo	Lebanon
Costa Rica	Liberia
Cuba	Libyan Arab Republic
Czechoslovakia	Luxembourg
Denmark	Madagascar
Dominican Republic	Malaysia
Ecuador	Mali
Egypt	Mexico
El Salvador	Monaco
Federal Republic of Germany	Morocco
Finland	Netherlands
France	New Zealand
German Democratic Republic	Nicaragua
Ghana	Nigeria
Greece	Norway
Guatemala	Peru
Guyana	Philippines
Honduras	Poland
Hungary	Republic of Viet-Nam
Iceland	Romania
	Saudi Arabia
	Senegal
	Sierra Leone

Spain
Sudan
Sweden
Switzerland
Syrian Arab Republic
Thailand
The People's Democratic
Republic of Yemen
Togo
Tunisia
Turkey
Uganda

Union of Soviet
Socialist Republics
United Kingdom
United Republic of
Tanzania
United States of
America
Upper Volta
Uruguay
Venezuela
Yugoslavia
Zaire

NON-MEMBER STATES

Holy See

San Marino

ANNEX II

List of documents of the Intergovernmental Conference on the Planning of National Documentation, Library and Archives Infrastructures, Paris, 23-27 September 1974

Agenda	COM-74/NATIS/1 Rev.
Rules of Procedure	COM-74/NATIS/2 Rev.
National Information Systems (NATIS): Objectives for national and international action	COM-74/NATIS/3
Working document	COM-74/NATIS/4
Regional meetings of experts on the national planning of documentation and library services - Summary of main recommendations	COM-74/NATIS/Ref. 1
Planning of national overall documentation, library and archives infrastructures, by H. Arntz	COM-74/NATIS/Ref. 2
Universal bibliographic control, by D. Anderson	COM-74/NATIS/Ref. 3
Planning for information technology, by J. Becker and L. Burchinal	COM-74/NATIS/Ref. 4
Planning information manpower, by P. Harvard-Williams and E. G. Franz	COM-74/NATIS/Ref. 5

COM-74/NATIS/3 Rev.
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La planification des infrastructures nationales de documentation, de bibliothèques et d'archives: Esquisse d'une politique générale (Planning national infrastructures for documentation, libraries and archives: Outline for a general policy) by J. H. d'Olier and B. Delmas	Series: Documentation, libraries and archives - studies and research. Manual No. 4
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General Information	COM-74/NATIS/Inf. 1
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List of Participants	COM-74/NATIS/Inf. 2 Rev.
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Information note on background documents	COM-74/NATIS/Inf. 3
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